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Docket 38961-14

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re:

Applicant: BRITTON, Daniel W. et al.

Group Art Unit: 3611

Serial No.: 09/925,726

Examiner: A.H. Lerner

Filed: August 10, 2001

For: "STROLLER"

Honourable Commissioner of Patents
and Trademarks,
Washington, D.C. 20231,
U.S.A.

Sir:

PRIORITY CLAIM COMPLETION

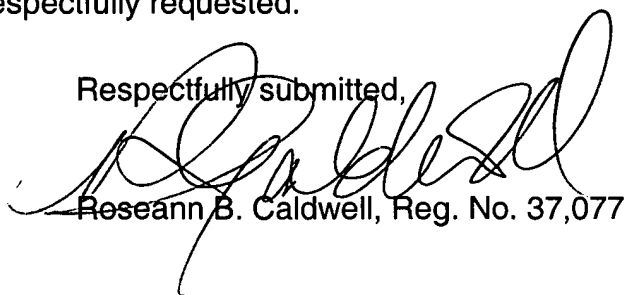
In order to complete the claim for foreign priority in the above-noted application, please find enclosed a certified copy of:

Canadian patent application 2,316,013, filed August 10, 2000

which was identified in the executed US Declaration.

Favorable consideration is respectfully requested.

Respectfully submitted,



Roseann B. Caldwell, Reg. No. 37,077

BENNETT JONES LLP
4500 - 855 - 2nd Street SW
Calgary, Alberta CANADA T2P 4K7
(403) 298-3661

Date:

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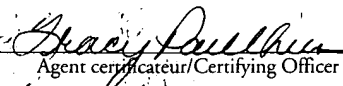
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This is to certify that the documents
attached hereto and identified below are
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the Patent Office.

Specification and Drawings, as originally filed, with Application for Patent Serial No:
2,316,013, on August 10, 2000, by 634182 ALBERTA LTD., assignee of
Daniel William Britton and Karl Mack Miller, for "Stroller".


Agent certificateur/Certifying Officer

May 19, 2004
Date

Canada

(CIPO 68)
04-09-02

OPIC  CIPO

Abstract of the Invention

A three wheel stroller is described that is foldable and includes a tracking adjustment mechanism. The stroller is folded by pivoting the main frame members about one pair of main connecting brackets. Handle height adjustment can be made at the bracket. Some foldable frame cross members are formed of cable, rather than
5 tubing to reduce the weight and folded size of the stroller over stroller having foldable cross members formed of tubing. A three wheeled stroller having adjustable wheel spacing for tracking adjustment is also described.

STROLLER

Field of the Invention

This invention is directed to a stroller and, in particular, to a three-wheeled stroller
5 that can be folded for storage.

Background of the Invention

In recent years, the use of three-wheeled strollers has become increasingly popular. Three-wheeled strollers are particularly desirable for use while jogging or over
10 rugged terrain or snow.

While some of the previously available three-wheeled strollers are foldable, many folding systems are complex both in terms of use and in terms of manufacture. The various cross members required to permit folding while maintaining stroller stability can increase the weight of the stroller to undesirable levels.

15 A common problem with previous jogging strollers is the tendency for their wheels to move out of alignment, thereby adversely affecting stroller tracking.

The use of strollers is often uncomfortable because the gripping portion of the stroller handle is at an incorrect height for the user. While some strollers include mechanisms for handle height adjustment, these mechanisms are often not user
20 friendly. The mechanisms also can weaken the handle and can complicate stroller construction, thereby increasing stroller cost.

A stroller is needed that overcomes at least some of the problems of previous strollers.

Summary of the Invention

The stroller of the present invention overcomes some of the problems previously encountered with three-wheeled strollers. The stroller folding system is simple with
5 respect to both use and manufacture and includes foldable cross members that are light-weight and durable. The stroller can be adjusted to correct tracking problems and to select handle height.

One stroller according to the present invention can be folded for storage and transport. The stroller includes three main structural units that pivot relative to each
10 other at one pivotal axis. The pivotal axis is defined by brackets aligned on each side of the stroller and into which each of the three main structural units are connected. This permits stroller construction to be simplified since only one pair of brackets is needed to be formed and mounted into the frame and many mechanical connections on the stroller are made through that bracket. The procedure by which
15 the stroller is folded is also simplified in the present stroller.

In accordance with a broad aspect of the present invention, there is provided a stroller having a forward end and a rear end and a long axis extending through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's
20 centre of gravity and rear wheels; a frame supported by the wheels including front forks for engaging the front wheel, a handle bar for grasping and moving the stroller and rear supports for engaging the rear wheels; a connecting bracket on each side of the frame having connected thereto the front forks and pivotally attached thereto the handle bar and the rear supports and positioned to permit the frame to pivot
25 about the bracket between an upright position and a folded position; and a locking means for releasably locking the front forks, the handle bar and the rear supports in an upright position.

The frame of the stroller can be formed of various materials including, but not limited to, aluminum or polymeric tubing, rods or bars. Frame cross members can
30 alternately be formed of flexible cables, as will be discussed in more detail. The

frame supports a seat for accepting one or more children and, if desired, a covering or sunshade to shelter the seat.

The handle can be formed in any way to facilitate grasping and control of the stroller. Preferably, the handle is height adjustable to be comfortable for users of differing height. In one embodiment, the connecting bracket includes a mechanism for
5 handle height adjustment. Preferably, the mechanism is incorporated into the handle's pivotal connection to the connecting bracket.

To provide stability the rear supports can have extending therebetween a cross bar or an axle extending between the wheels. The frame can also include other
10 stabilising cross bars such as one extending between the front forks and the rear supports.

The wheels are selected to support the frame and permit it to be rolled as by pushing. The wheels can be of any desired size. Preferably, the wheels are mounted to rotate in planes parallel with the long axis of the stroller and are
15 restricted from pivoting out of these planes. A tracking adjustment can be mounted on the stroller to permit adjustment of relative wheel alignment.

The locking means can be any mechanism or part for locking frame members in an upright position. As an example, the locking means can be pins, fasteners, overcenter mechanisms, etc.

20 Another stroller according to the present invention includes at least one flexible elongate cross member extending between main frame members. The cross member is connected between main frame members to maintain or limit their spacing and are particularly useful for extending between main frame members that are pivotable relative to each other and for being placed in tension between main
25 frame members. The flexible elongate cross members can replace some stiff cross members, thereby reducing stroller complexity, folded size and weight.

Thus, according to another broad aspect of the present invention, there is provided a stroller having a forward end and a rear end and a long axis extending through the

forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity and rear wheels; a frame supported by the wheels including main frame members (a) front forks for engaging the front wheel, (b) a handle bar for grasping and moving the stroller and (c) rear supports securing and extending upwardly from the rear wheels; and a flexible, elongate cross member extending between at least two of the main frame members.

The flexible elongate cross member can be, for example, a strap, a chain or a cable. Preferably, the flexible elongate member is substantially inextensible. In one embodiment, the flexible elongate member is secured in fixed positions on the at least two main frame members between which it extends. In another embodiment, the stroller includes a tension adjustment means for selecting the tension in the flexible elongate member as it extends between the main frame members. Various tension adjustment means such as, for example, threaded connections, clamps and levers are useful with the stroller.

Due to manufacturing or wear and tear, a stroller can tend to lose its ability to track straight. Thus, another stroller according to the present invention includes a means for tracking adjustment.

Thus, according to yet another broad aspect of the present invention, there is provided a stroller having a forward end and a rear end and a long axis extending through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity, a left rear wheel and a right rear wheel; a frame supported by the wheels including front forks securing and extending rearwardly from the front wheel, a handle bar for grasping and moving the stroller, a left rear support securing and extending upwardly from the left rear wheel and a right rear support securing and extending upwardly from the right rear wheel; and a tracking adjustment means for selecting and maintaining the spacing of the front wheel relative to each of the left rear wheel and the right rear wheel.

In one embodiment, the tracking adjustment means is two elongate members each one extending between the front forks and one of the rear supports. Each of the elongate members is inextensible and selectable in length.

5 According to another broad aspect of the present invention, there is provided a stroller having a forward end and a rear end and a long axis extending through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity, a left rear wheel and a right rear wheel; a frame supported by the wheels including front forks securing and extending rearwardly from the front wheel,
10 a left rear support securing and extending upwardly from the left rear wheel, a right rear support securing and extending upwardly from the right rear wheel; and a handle bar for grasping and moving the stroller, the handle bar being attached to the front forks by a pivotal connection and the pivotal connection being incorporated into a mechanism for handle height adjustment with respect to the stroller.

15

Brief Description of the Drawings

A further, detailed, description of the invention, briefly described above, will follow by reference to the following drawings of specific embodiments of the invention. These drawings depict only typical embodiments of the invention and are therefore not to
20 be considered limiting of its scope. In the drawings:

Figure 1 is a side elevation view of a stroller according to the present invention in an upright, locked position ready for use. The left rear wheel has been removed to facilitate illustration;

25 Figure 2 is a side elevation view of the stroller of Figure 1 with the seat removed and in upright, unlocked position ready for folding. The left rear wheel has been removed to facilitate illustration;

Figure 3 is a perspective view of the stroller of Figure 2;

Figure 4 is a front elevation view of the stroller of Figure 1 with the seat removed;

Figure 5 is a side elevation view of the stroller of Figure 1 in folded configuration with the wheels removed; and

- 5 Figure 6 is a side elevation view of a stroller according to the present invention showing handle height adjustment.

Detailed Description of the Preferred Embodiments

Referring to the Figures, a stroller 10 according to the present invention is shown. The stroller can be used to transport children

- 10 Stroller 10 includes a frame 12 supported on a front wheel 14 and two rear wheels 16a, 16b. Large diameter wheels, as shown, are preferred as they provide a smoother ride over rough terrain and at jogging speeds. Frame 12 supports a seat 18 and a sun shade support 19. The seat and sun shade or enclosures, if any, can be any desired configuration on the frame. The seat has been removed from the
15 stroller in Figures 2 to 6 to facilitate illustration of the embodiments of the invention.

The frame includes a handle 20 for pushing the stroller, front forks 22 and rear supports 24. Handle 20 is generally a U-shaped member having forward ends 20' and a gripping portion 21.

- 20 Front forks 22 taper from side, upper ends 22' to front end 22" where the axle 26 of the front wheel is mounted. A quick release mechanism, as is known, is preferably provided at this connection to facilitate removal of the front wheel for storage. Front forks 22 include a strengthening cross bar 27.

- 25 Rear supports 24, including left and right rigid elongate members, engage at their lower ends 24", a common rear axle 28 for rear wheels 16a, 16b. The common axle serves to stabilise the rear supports one relative to the other. Quick release mechanisms can also be used between the axle and the rear wheels.

The handle, front forks and rear supports are connected together at a bracket 30 on each side of the stroller. Preferably, the stroller is constructed to be folded about the connections between the frame components and the brackets. Thus, the any pivotal connections between the frame components and the brackets on either side of the stroller are aligned so that they work in unison.

In a preferred embodiment, as shown, front forks 22 are rigidly secured, as by use of fasteners 32, to brackets 30. Rear supports 24 are each pivotally connected to the bracket by pins passing through holes in the brackets. Rear supports 24 together can pivot about pins 34 toward the underside of the front forks, as shown by arrow A in Figure 2, until they are in a folding configuration under the front forks (Figure 5). At least one, and preferably both, rear supports have mounted thereon a stop 38 that abuts against at least one bracket 30 to limit rotation of the rear supports about pins 34. As will be appreciated, generally at least some of the weight of the stroller load is accommodated through the stops. Thus, the stops are formed to withstand and effectively transfer that load. Pivotal movement about pins 34 is also limited by cables 40. A cable 40 is connected between front forks 22 and each rear support 24. Being flexible, for example, made of steel braided cable, cables 40 can fold when rear supports 24 are folded toward forks 22. Thus, cables 40 strengthen the frame and permit folding while being light-weight and simple and economical to use in stroller construction. The cables are useful in tracking adjustment, as will be described hereinafter.

Handle 20 is pivotally connected at ends 20' through pins 42 to brackets 30. Pins 42 are pivotable and ride in slots 44. The handle can be pivoted at pins 42 toward the topside of the front forks, as shown by arrow B in Figure 2, until they are in a folded configuration on the front forks (Figure 5). Brackets 30 includes stops 46 for limiting rotation of the handle away from the front forks. Stops 46 can be structures mounted into or formed integral with the brackets.

Brackets 30, as will be appreciated, must be formed of durable yet easily formed materials such as, for example, polymeric materials or aluminum. To reduce the weight and amounts of materials required to form a bracket, openings 48 can be

formed in non-functioning areas, provided the strength of the bracket is not compromised.

For proper use, handle 20 and rear supports 24 must be locked into their fully unfolded configurations, as shown in Figure 1. While a plurality of locks could be used, preferably one lock is used that when actuated releases both the handle and the rear supports for pivotal movement substantially simultaneously. In the illustrated embodiment, rear supports 24 are locked against stops 38 and/or the tension in cables 40 and handle 20 is locked against stops 46 by lock cables 50 and overcentre clamp 52. Cables 50 are substantially inextensible and formed, for example, of braided steel cable. The cables are fixedly secured to handle 20 at connections 53 and to overcentre clamp 52 at connections 54. Overcentre clamp 52 includes side members 56 and a handle 58 extending therebetween. The side members of the clamp are pivotally connected by pins 60 to rear supports 24. Other clamp configurations can be used, such as a clamp handle centrally positioned between the rear supports or a molded one piece clamp.

Cables 50 are selected to be of a length just slightly less than the maximum distance between connections 53 and connections 54. To actuate the lock, the overcentre clamp is pivoted about its connection to the rear members. In particular, to lock the handle and rear supports into their fully extended positions, the overcentre clamp is rotated down away from handle 20. This tightens the cables down. Because cables 50 are not as long as the maximum distance between connections 53 and 54, continued rotation of the clamp down away from handle 20 will cause the cables to stretch and overcentre past fasteners 60 (Figure 1). Once overcentred, cables 50 will drive clamp 52 against rear supports 24 and the handle and the rear supports will be locked into their fully extended positions. To unlock the frame in order to permit folding thereof, force will have to be applied to clamp handle 58 to move the cables past fasteners 60 (Figure 2). Force applied to clamp handle 58 will move side members 56 to substantially simultaneously unlock both handle 20 and rear supports 24.

As will be appreciated, if cables 50, during an unfolding operation, move forwardly of pins 34, handle 20 and rear supports 24 will be locked from fully unfolding. Therefore, in a preferred embodiment, a cable restraint 65 is mounted on bracket 30 to restrict cable movement behind pins 34. Cable restraint 65 can be a rigid rod or slot or, preferably, strap connected at each end to bracket 30.

In the preferred embodiment, as best illustrated in Figure 6, the height of handle 20 is adjustable. Advantageously, such adjustment is made at bracket 30 which is at the front end 20' of handle. This reduces complexity in the stroller construction and increases handle rigidity over previous strollers wherein height adjustment occurs at the gripping end or away from the connection of the handle to the frame. Handle height adjustment is simple and user friendly.

In particular, preferably slot 44 is formed as a portion of a circle and pin 42 is connected to the handle and rides in the slot. Pin 42 also extends through a lever 66 having a fulcrum at pin 68. Lever 66 can be rotated, as shown by arrows C, about fulcrum pin 68 to drive pin 42 along slot 44 between its ends. This drives end 20' of the handle up and down relative to the bracket. Handle 20 then acts as a lever using stop 46 as a fulcrum and gripping portion is raised and lowered. When pin 42 is in the upper portion of slot 44, the handle will be in a lower gripping position, shown in solid lines in Figure 6. When pin 42 is rotated to the lower portion of slot 44, the handle will be in an higher gripping position, as shown in phantom.

When cables 50 are locked overcentre, pin 42 is driven into its position along slot 44 and remains firmly in place. Preferably, connection 53 of the cables to the handle is adjacent stop 46. Handle 20 rests against stop 46 and remains positionally fixed regardless of the handle height so that length and locking of cables 50 is not affected by the handle height adjustment.

As noted previously, tracking is an important consideration with jogging strollers. Off-straight tracking can be caused by manufacturing tolerances and/or by wear and tear. The stroller of the present invention includes a tracking adjustment mechanism. The tracking adjustment mechanism includes cables 40 and cable

- length adjustment screws 70. In particular, cables 40 are connected to screws 70 that thread into threaded apertures 72 on the rear supports 24. Since off-straight tracking is caused by misalignment between the front and rear tires and/or misalignment of the front tire with respect to the long axis of the stroller, adjustment
- 5 of the lengths of cables 40 will adjust wheel spacing and, thereby, wheel alignment and tracking. If the stroller is tracking to the side, one or both screws 70 can be threaded into or out of the apertures to adjust the tension in the cable to which it is attached. As an example, if the stroller is tracking to the left, the right screw could be tightened to correct this problem.
- 10 It will be apparent that many other changes may be made to the illustrative embodiments, while falling within the scope of the invention and it is intended that all such changes be covered by the claims appended hereto.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A stroller having a forward end and a rear end and a long axis extending
5 through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity and rear wheels; a frame supported by the wheels including front forks for engaging the front wheel, a handle bar for grasping and moving the stroller and rear supports for engaging the rear
10 wheels; a connecting bracket on each side of the frame having connected thereto the front forks and pivotally attached thereto the handle bar and the rear supports and positioned to permit the frame to pivot about the bracket between an upright position and a folded position; and a locking means for releasably locking the front forks, the handle bar and the rear supports in an
15 upright position.
2. The stroller of claim 1 wherein the connecting bracket includes a mechanism for handle height adjustment.
3. The stroller of claim 2 wherein the mechanism for handle height adjustment is incorporated into the handles pivotal connection to the connecting bracket.
- 20 4. The stroller of claim 1 further comprising a cross bar formed as an elongate flexible member extending between the front forks and the rear supports.
5. The stroller of claim 1 further comprising a tracking adjustment mechanism driving adjustment of relative wheel alignment.
6. A stroller having a forward end and a rear end and a long axis extending
25 through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity and rear wheels; a frame supported by the wheels including main frame members (a) front forks for engaging the front wheel, (b) a

handle bar for grasping and moving the stroller and (c) rear supports securing and extending upwardly from the rear wheels; and a flexible, elongate cross member extending between at least two of the main frame members.

7. The stroller of claim 6 further comprising a tension adjustment means for
5 selecting the tension in the flexible elongate member as it extends between the main frame members.

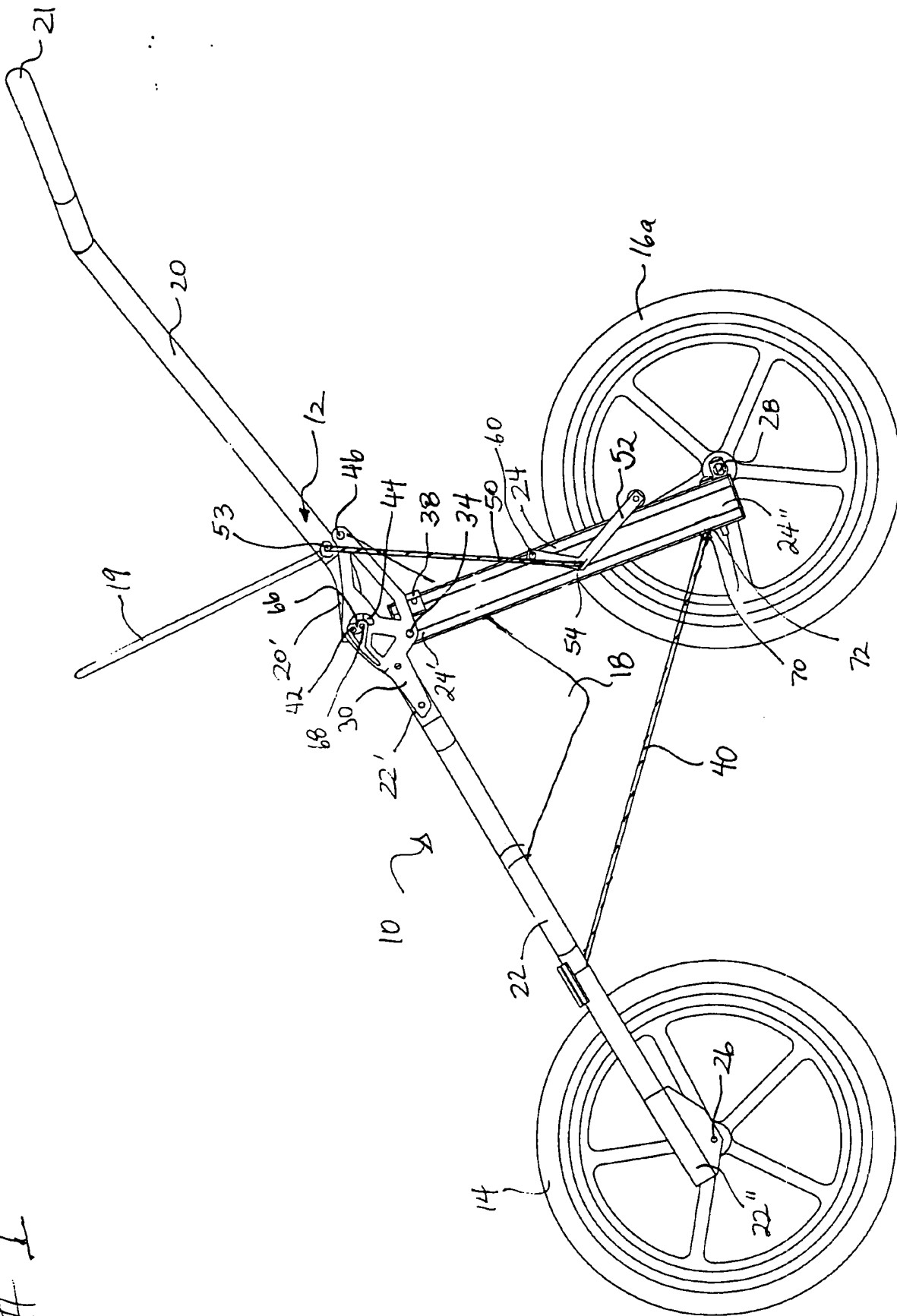
8. A stroller having a forward end and a rear end and a long axis extending through the forward end and the rear end, the stroller comprising: a plurality of
10 wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity, a left rear wheel and a right rear wheel; a frame supported by the wheels including front forks securing and extending rearwardly from the front wheel, a handle bar for grasping and moving the stroller, a left rear support securing and extending upwardly from the left rear wheel and a right rear support securing and extending upwardly from the right rear wheel; and a tracking adjustment means
15 for selecting and maintaining the spacing of the front wheel relative to each of the left rear wheel and the right rear wheel.

9. The stroller of claim 8 wherein the tracking adjustment means is two elongate members, each elongate member extending between the front forks and one of the rear supports and being inextensible and including a means for
20 selecting the length of the elongate member.

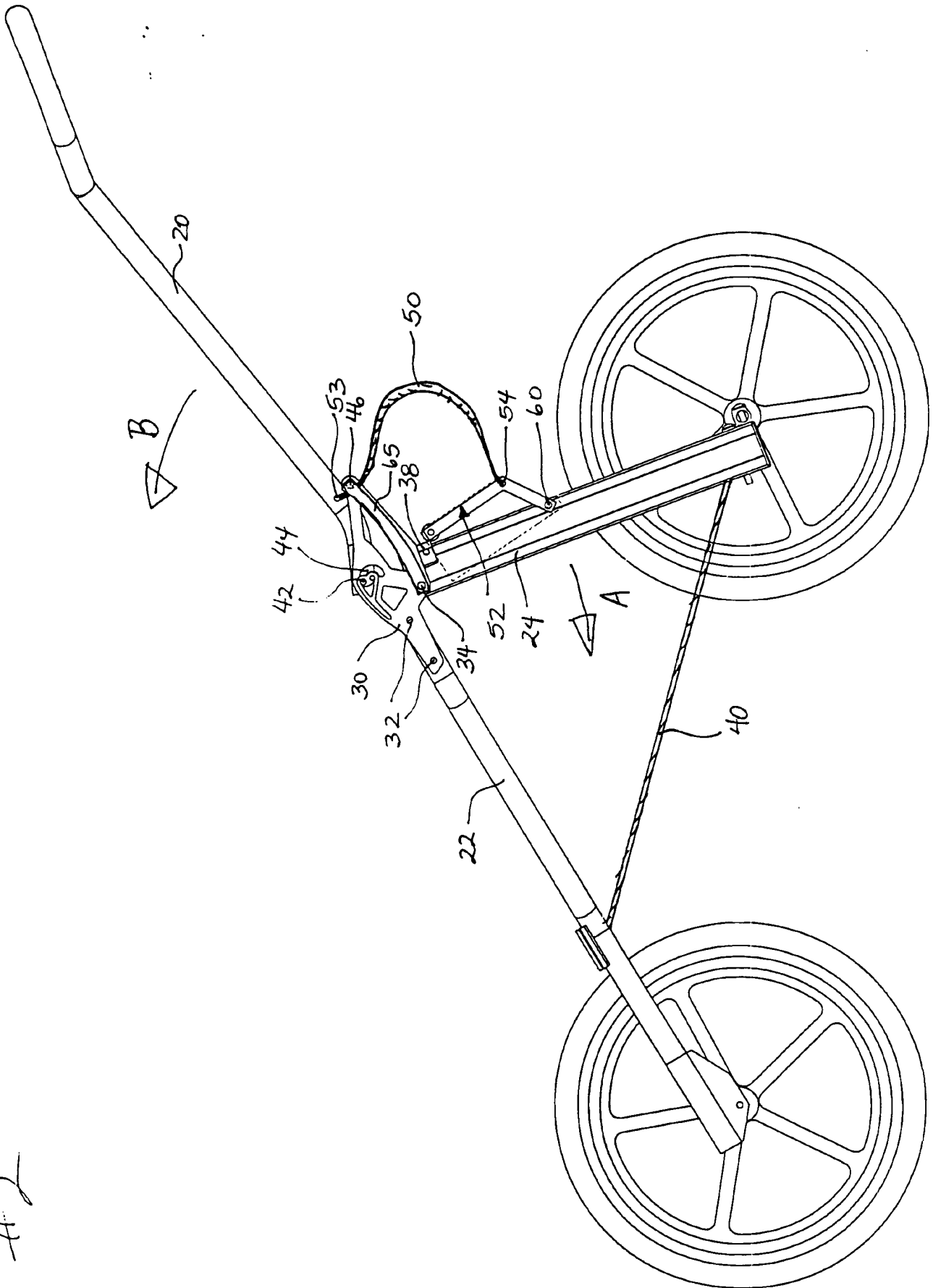
10. A stroller having a forward end and a rear end and a long axis extending through the forward end and the rear end, the stroller comprising: a plurality of wheels for supporting the stroller including a forward wheel positioned forward of the stroller's centre of gravity, a left rear wheel and a right rear wheel; a
25 frame supported by the wheels including front forks securing and extending rearwardly from the front wheel, a left rear support securing and extending upwardly from the left rear wheel, a right rear support securing and extending upwardly from the right rear wheel; and a handle bar for grasping and moving the stroller, the handle bar being attached to the front forks by a pivotal

connection and the pivotal connection being incorporated into a mechanism for handle height adjustment with respect to the stroller.

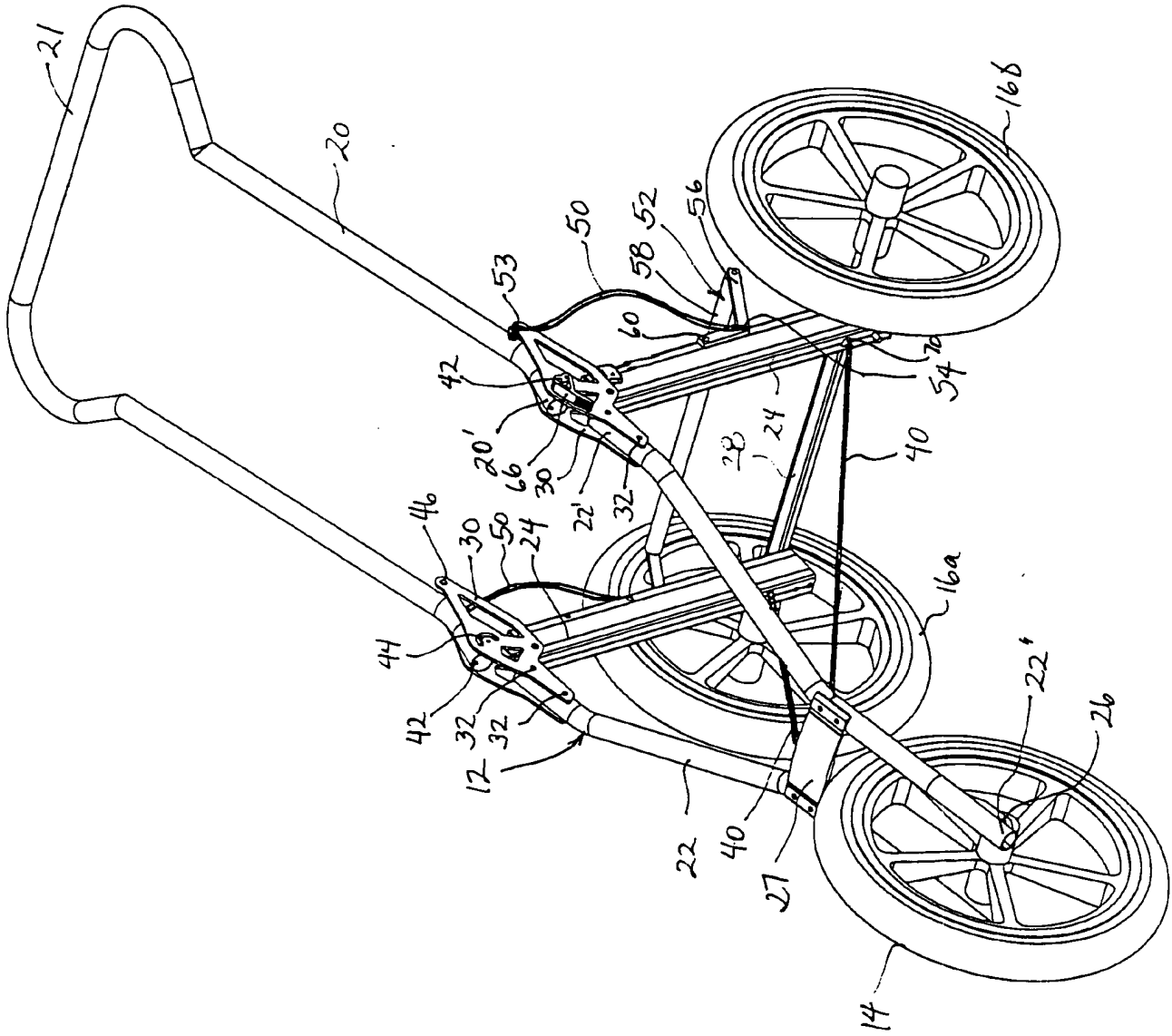
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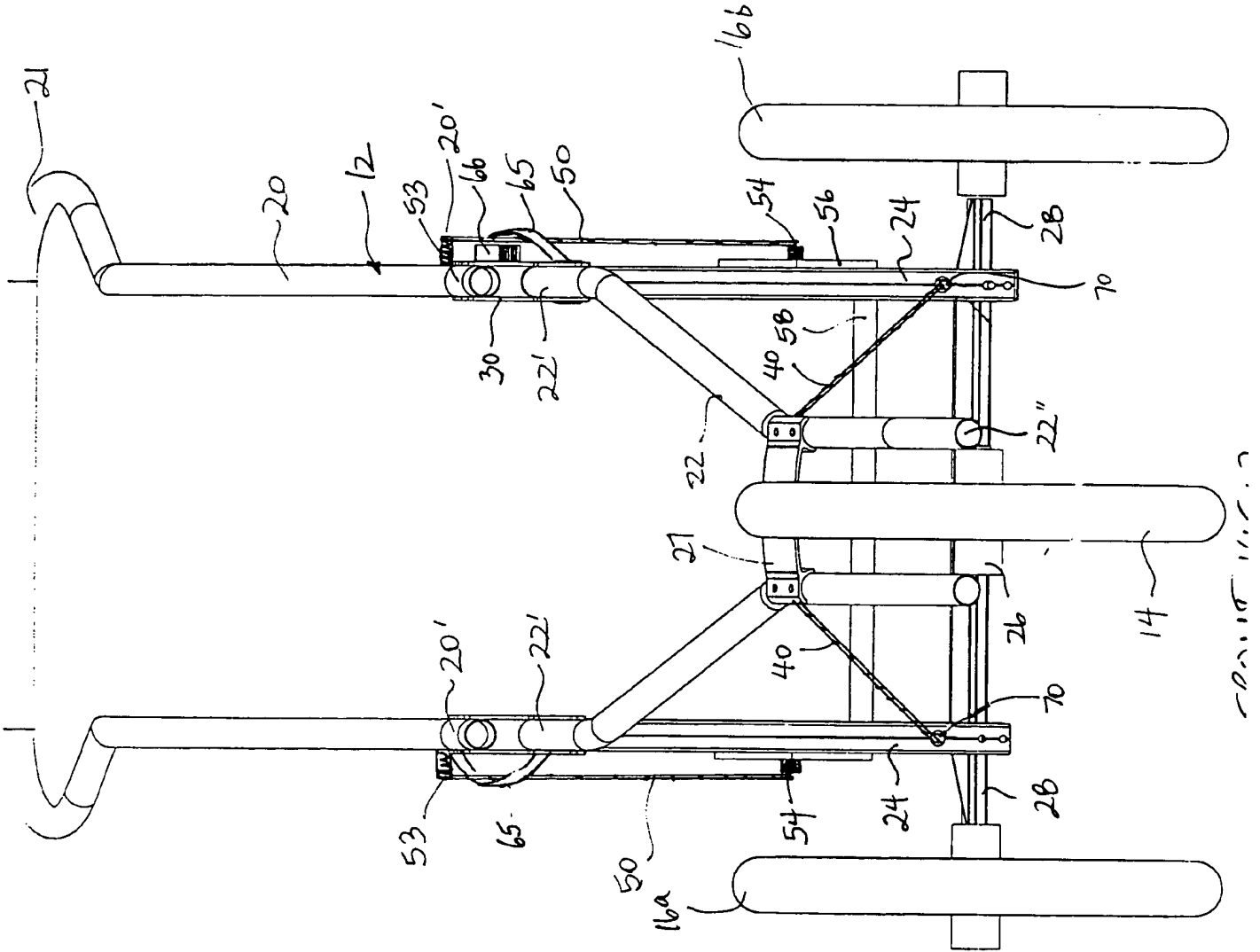


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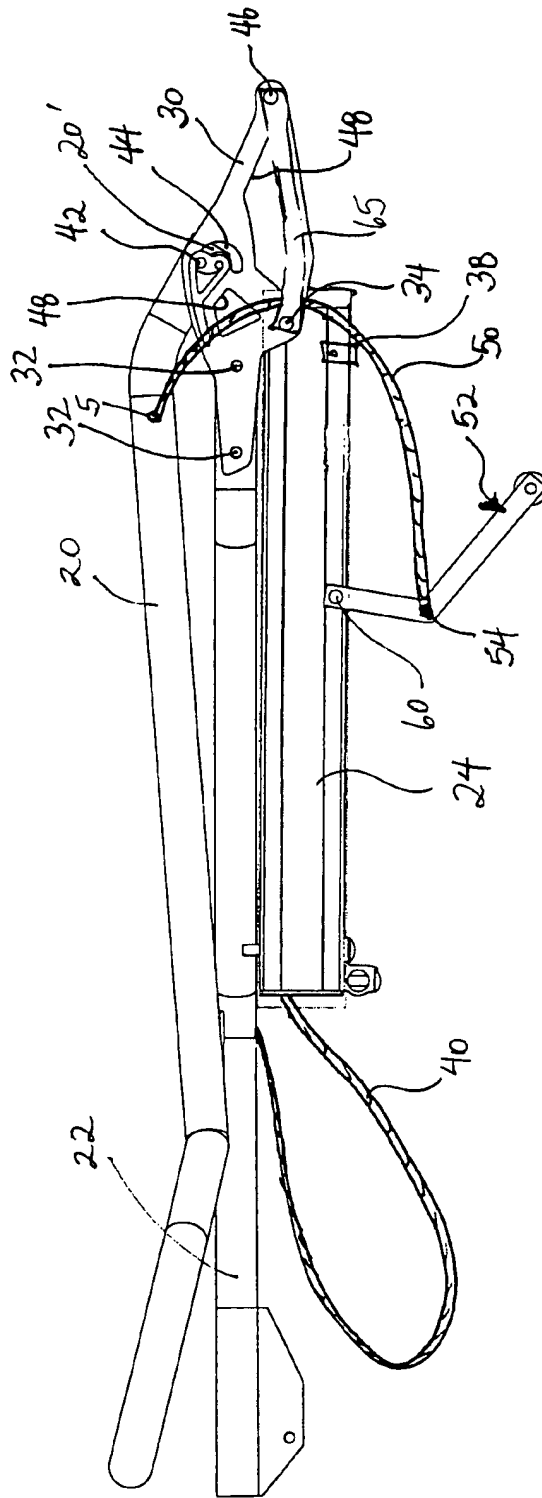


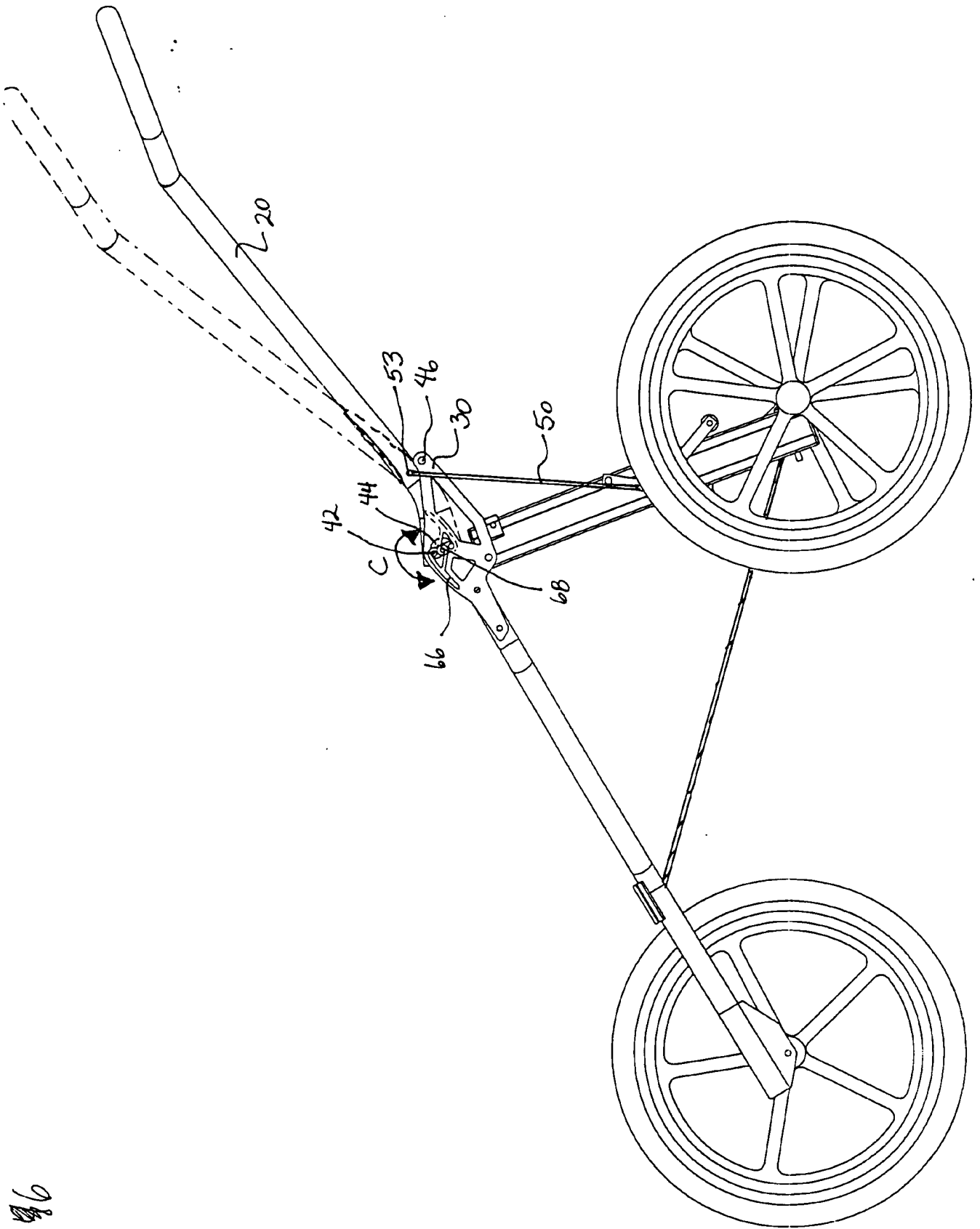
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